APPENDIX J

Protected Species and Habitat Protocols

Contents

Abbreviations & Acronyms

BIP	blow in place
CFR	Code of Federal Regulations
DNER	Department of Natural and Environmental Resources
EEG	Ellis Environmental Group, LC
EQB	Environmental Quality Board
ESA	Endangered Species Act
FWS	Fish and Wildlife Service
GPS	global positioning system
MEC	munitions and explosives of concern
mm	millimeter
NMFS	National Marine Fisheries Service
NWR	National Wildlife Refuge
SUXOS	senior unexploded ordnance supervisor
USACE	United States Army Corps of Engineers
UXO	unexploded ordnance

1.0 Purpose

1.0.01 The purpose of these protocols is to provide specific guidance concerning the protection of threatened and endangered species and their habitats. These guidelines will address the procedures that will be employed to protect endangered and threatened species while performing munitions and explosives of concern (MEC) removal activities during this project.

1.0.02 In the event that MEC requiring destruction in place is in such close proximity to a protected species as to preclude protection of the species using reasonable methods, the appropriate regulatory agency will be notified for a decision as to disposition of the protected species. This may include pruning for propagation and re-introduction of the plant after the MEC has been destroyed or relocation of the plant.

1.1 Preliminary Actions

1.1.01 Ellis Environmental Group, LC (EEG) will coordinate with the Puerto Rico Department of Natural and Environmental Resources (DNER) prior to cutting any vegetation at the site.

1.1.02 Clearance of vegetation on the United States Fish and Wildlife Service (FWS) refuge will require close coordination with FWS, DNER, and Puerto Rico Environmental Quality Board (EQB) personnel. EEG will use a qualified tropical botanist prior to the start of any clearance operations at any of the work sites to perform a protected species and habitat survey.

1.1.03 The locations of protected species and habitats found in EEG's work areas will be located using a global positioning system (GPS). The collected location data including types of species found will be delineated on a map and provided to regulatory personnel.

1.1.04 During the survey, protected species and habitats will be photographed to document the physical nature of the species for use in comparisons after the clearance has occurred and to be used during the site-specific training of the field team members. Wetlands areas will be delineated during the species and habitat survey by the tropical botanist.

1.2 Personnel Training

1.2.01 All on-site project personnel will be instructed during site orientation training of the potential threatened and endangered species in the area and of the need to avoid harming these plants and animals.

1.2.02 On-site personnel will be instructed that civil and criminal penalties exist for harming, harassing, or killing birds, manatees, sea turtles, dolphins, or whales, which are protected under the Marine Mammal Protection Act of 1972, the Endangered Species Act (ESA) of 1973, and Puerto Rico DNER Regulation Number 6766 for the preservation of vulnerable species and species in danger of extinction (February 11, 2004).

1.3 Regulatory Interfaces

The EEG site manager will consult with appropriate agencies concerning threatened and endangered species to ensure that the operations do not negatively impact endangered plants and animals.

1.4 Vegetation Trimming and Pruning

1.4.01 EEG plans to trim and prune only the minimum amount of vegetation on the cays and Culebrita in order to allow our personnel access to the MEC removal areas. If necessary, EEG may trim grasses to no less than 6 inches in height.

1.4.02 Underbrush and trees may be pruned to a height of 12 inches from the ground surface or less to allow full instrument coverage underneath the trees. Most vegetation removal will be conducted on the FWS reserve using hand tools (weed-eaters, trimmers, etc.). Heavier equipment may be used for clearance at Cerro Balcon. The EEG site manager will coordinate with DNER and FWS to take cuttings of plants as previously agreed.

1.4.03 To the extent possible, native trees greater than 2 inches in diameter must be left in place; however, they may be lightly pruned as required to allow full coverage of the ground with the geophysical sensors. In cases where MEC is found embedded in a native tree, FWS and DNER will be notified prior to removal. Invasive plants such as mesquite can be removed. All protected native trees which should not be pruned or removed as part the removal action will be flagged.

1.5 Detonations in the Vicinity of Sensitive Species and Habitats

1.5.01 If necessary, a sandbag barricade will be constructed to ensure that the species or habitat is protected. The barricade will be of sufficient height (2 to 4 feet tall) to protect the main part of the vegetation from fragmentation. Before and after photographs will be taken to show the extent of impact to the area after the detonation has occurred.

1.5.02 To reduce noise and fragmentation during detonations, MEC up to 155 millimeters (mm) will be tamped with sandbags per United States Army Corps of Engineers (USACE) guidance documents. Items greater than 155 mm will be tamped using loose soil in accordance with the buried explosion module (BEM). Vegetation surrounding detonation points will be wetted to prevent fires. Water mitigation of fragmentation may be used in lieu of sandbags.

1.6 Negative Species or Habitat Impacts

In the unlikely event that a threatened or endangered species or habitat is harmed as a result of MEC removal activities, the damage will be photographed and the photographs submitted to the EEG project manager with a description of the cause of the damage. On any future demolition shots, root cause analysis will be performed and adjustments to the procedures will be initiated to prevent recurrence.

2.0 Sensitive Environment Operations

2.1 Wetlands

The wetlands survey will be reviewed by the responsible environmental resources agencies, as appropriate, before clearance operations are conducted. EEG will perform clearance activities in wetland areas during this investigation; however, EEG will not perform clearance activities within the submerged portions of the wetlands. Submerged portions of the wetlands will be delineated by GPS at the time of the MEC removal action.

2.2 Sea Turtle Nesting Areas

Beaches on Isla Culebrita within the authorized project area will be surface-cleared of MEC. On Culebrita, all beachfront areas on the southwest-facing shore, east-facing shore, and northwest-facing shore of the island from mean high tide inland to a point 150 meters from shore have been designated critical habitat for hawksbill sea turtles (50 Code of Federal Regulations [CFR] 17.95).

2.2.1 Sea Turtle Nesting Season

The nesting season varies with locality, but in most locations nesting occurs sometime between April and November. Hawksbill sea turtles may nest all year. Hawksbills nest at night, although there are reports of daytime nesting, and, on average, about 4 to 5 times per season at intervals of approximately 14 to 19 days. Each clutch contains 70 to 160 eggs, which hatch in about 60 days.

Nesting behavior follows a general sequence of that of other species of sea turtles: emergence from the sea, site selection, site clearing and pit construction, egg chamber construction, egg laying, filling in the egg chamber, disguising the nest site, and returning to sea. The entire process takes about 1 to 3 hours.

2.2.2 Clearance Operations In and Around Turtle Nesting Areas

2.2.2.01 Prior to the initiation of clearance activities on Culebrita and additional cays, beach clearance crews will be briefed as to the endangered status of sea turtles, potential penalties associated with violation of ESA crawl and nest identification, and sea turtle biology.

2.2.2.02 Prior to the initiation of clearance activities on beaches, the senior unexploded ordnance supervisor (SUXOS), the crew leader, and the site manager will coordinate with the refuge manager and monitoring personnel as to known locations of sea turtle nests as determined through agency nest monitoring. The site manager will communicate daily with the refuge manager as to whether monitoring personnel have located new nest locations within the work area since the initial briefing. If possible, the clearance team leader and FWS personnel will visit the nest locations to ensure positive identification of these locations. If agreed upon by FWS, nest locations will be unobtrusively marked to aid clearance personnel in nest avoidance. All beach clearance activities will be closely coordinated with FWS and agency nest monitoring personnel.

2.2.2.03 The critical habitat boundaries of the hawksbill sea turtle on Culebrita will be determined and marked on aerial photographs to aid clearance crews in the identification of this habitat. Clearance of vegetation within critical habitat will be kept to the absolute minimum required for the identification of MEC. No sea grapes or other larger plants will be cut within designated critical habitat boundaries; however, these plants may be lightly pruned in order to gain access to detected MEC.

2.2.2.04 If clearance crews believe that they have identified an unknown nest location, clearance activities surrounding the suspected nest will cease, the location recorded, and FWS contacted for confirmation. A 10-foot buffer around suspected turtle nests will be investigated without approval and coordination with the responsible regulatory agencies.

2.2.2.05 In the event that a partially buried MEC that is acceptable to be moved is located adjacent to a sea turtle nest, FWS will be contacted to determine the best course of action to minimize impact to the nest. If MEC requiring blow in place (BIP) is located adjacent to a sea

turtle nest, detonation will be postponed and FWS and USACE will be immediately notified so that, through discussion, the best alternative course of action to avoid nest disturbance may be determined. Digital photos will be taken of the situation and e-mailed to involved parties to aid in discussion.

2.2.2.06 All efforts will be made to avoid sand compaction surrounding nest locations. Any ruts or holes created as a result of clearance activities will be graded to prevent potential barriers to hatchlings.

2.3 Access and Egress at Culebrita and the Cays

The extensive seagrass beds of the Culebra archipelago support a large juvenile population of green turtles. Transport boats to and from the cays will watch for and avoid sea turtles in the water. Should a turtle be struck and injured or killed during transport of crews, the National Marine Fisheries Service (NMFS) protected species coordinator and DNER will be notified. The same will apply to marine mammals.

2.4 Benthic Environment

2.4.01 Access to the cays will be dependent on wind, wave, and current directions.

2.4.02 EEG will assess the access routes and points to the cays and coordinate them with the applicable regulatory agencies.

2.4.03 The transport boat utilized for the smaller cays will remain offshore.

2.4.04 Clearance crews and equipment will be ferried to the cays with an inflatable-type craft.

2.4.05 If anchoring is to be performed, anchoring locations will be determined in concurrence with the responsible environmental agencies prior to work commencing on the cays.

2.5 Endangered and Threatened Bird Species

2.5.01 The following table lists the known endangered and threatened bird species that may be located in the project area.

Threatened and Endangered Bird Species Potentially Occurring in Culebra Island Archipelago

Latin Name	English Common Name	Spanish Common Name	FWS ESA Status	Puerto Rico Status
Pelicanus occidentalis occidentalis	Brown pelican	Pelícano pardo	E	E
Falco peregrinus tundrius	Peregrine falcon	Falcón peregrino	NL	CE
Sterna dougalli	Roseate tern	Palometa	T	V
Oxyura dominica	Masked duck	Pato dominico	NL	E
Oxyura jamaicensis	Ruddy duck	Pato chorizo	NL	V
Fulica caribaea	Caribbean coot	Gallinazo caribeño	NL	V
Tachybaptus dominicus	Least grebe	Tigua	NL	DD
Dendrocygna arborea	West Indian whistling duck	Chiriria antillano	NL	CE
Anas bahamensis	White cheeked pintail	Pato quijada colorada	NL	V
Sterna antillarum	Least tern	Gaviota chica	NL	DD
Columba leucocephala	White crowned pigeon	Paloma cabeciblanca	NL	DD
Geotrygon mystacea	Bridled quail dove	Paloma perdiz de Martinica	NL	DD
Charadrius melodus	Piping plover	Chorlo melódico	T	CE
Key: CE = Critically endangered; DD = Deficient data; E = Endangered; NL = Not listed; T = Threatened; V = Vulnerable				

2.5.02 The cays surrounding Culebra are known nesting areas for shorebirds and seabirds. The volcanic rocks and cays of northeastern Puerto Rico provide a suitable habitat for the nesting of marine birds. These rocks and cays are unstable and subject to erosion despite their dense vegetative cover. Fourteen species of marine birds nest in the Culebra archipelago (Saliva 2005) (see following table).

Nesting Marine Birds of the Culebra Archipelago

Latin Name	Spanish Common Name	English Common Name
Anous stolidus	Cervera	Brown noddy
Larus atricilla	Gaviota cabecinegra	Laughing gull
Phaethon aethereus	Chirre de pico colorado	Red-billed tropicbird
Phaethon lepturus	Chirre de cola blanca	White-tailed tropicbird
Puffinus lherminieri	Pampero	Audobon's shearwater
Sterna anaethetus	Gaviota monja	Bridled tern
Sterna dougalli	Palometa	Roseate tern
Sterna eurygnatha	Gaviota de cayena	Cayenne tern
Sterna fuscata	Gaviota oscura	Sooty tern
Sterna maxima	Gaviota real	Royal tern

Latin Name	Spanish Common Name	English Common Name
Sterna sandvicensis	Gaviota piquiaguda	Sandwich tern
Sula dactylatra	Boba enmascarada	Masked booby
Sula leucogaster	Boba parda	Brown booby
Sula sula	Boba patirroja	Red-footed booby
Source: Saliva 2005		

2.5.03 Transport to the work sites and landing of vessels to offload equipment will be coordinated with DNER. Landing sites will be located to avoid impacting coral reef and seagrass bed communities.

2.5.04 Work in all areas of Culebra National Wildlife Refuge (NWR) will be coordinated with the FWS Boquerón field office, the Office of Ecological Services, and/or Culebra NWR before work commences on any site. All work on cays will adhere to a schedule outlined by FWS. The known restrictions to work schedules are listed as follows.

2.5.1 Work Restrictions in Survey Areas

Nesting activities of certain avian species will lead to work restrictions on Isla Culebrita and the cays. During the nesting period, no operations will be allowed on specific cays. Work on these cays must be closely coordinated with DNER and FWS to prevent impact to sensitive species. There will be no restrictions for work at Cerro Balcon due to nesting birds.

2.5.2 Cayos Geniqui, Agua, Lobo, Alcarraza

These cays are utilized year-round as nesting and roosting sites for resident or migratory seabirds and resident terrestrial birds. Any entry onto the cays will be coordinated with the Culebra NWR manager for avoidance of nesting sites. Every reasonable effort will be taken to ensure that desirable nesting habitat cover is not damaged. FWS will provide guidelines for protection of nesting habitats.

2.5.3 Work Restrictions at Cayo del Agua and Cayo Lobo

Migratory seabirds (bridled terns, red-billed tropicbirds, white-tailed tropicbirds, Audubon shearwaters) and/or resident birds (Zenaida doves, white-cheeked pintails, oyster catchers) are present at various months of the year. Entry onto the cays can be made only from September through March through coordination with the Culebra NWR manager, who will identify any

existing nests for avoidance. Coordination with DNER is necessary to address the presence of white-cheeked pintails on Cayo del Agua, which are listed as threatened by the Commonwealth of Puerto Rico.

2.5.4 Work Restrictions at Cayos Geniqui

Migratory seabirds (brown boobies, red-footed boobies, bridled terns, laughing gulls, brown noddies, magnificent frigatebirds, white-tailed tropicbirds, red-billed tropicbirds) are present at various months of the year. The only months where entry onto the cay will be allowed are November through January through coordination with the Culebra NWR manager to avoid nesting sites. Any detonation will be done with maximum measures to minimize noise to reduce impacts to birds.

2.5.5 Work Restrictions at Cayo Alcararraza

Migratory seabirds (masked boobies, brown boobies, bridled terns, brown noddies, magnificent frigatebirds) and resident birds (Zenaida doves) are present at various months of the year. The only months where entry onto the cay will be allowed are November through January through coordination with the Culebra NWR manager to avoid nesting sites. Any detonation will be done with maximum measures to minimize noise to reduce impacts to birds.

3.0 References

Saliva, J.E., 2005. “La palometa y las áreas de aniadaje de las aves marinas en Puerto Rico.” *El Bien-te-veo,* Vol 8, No. 2. Sociedad Ornitológica Puertorriqueña, Inc.